

CLAIMS

1. Chewing gum comprising

- 5 at least one biodegradable polyester copolymer obtained by the polymerization of two ore more cyclic esters by ring-opening

said at least one biodegradable polyester copolymer having a molecular weight of less than 150000 g/mol and said chewing gum further comprising chewing gum
10 ingredients.

2. Chewing gum according to claim 1, wherein the at least one biodegradable polyester copolymer having a molecular weight of less than 150000 g/mol results in an improved initial release in the resulting chewing gum.

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3. Chewing gum according to claim 1 or 2, wherein said at least one biodegradable polymer has a molecular weight of less than 125000 g/mol.

4. Chewing gum according to any of claims 1- 3,
20 wherein said at least one biodegradable polyester copolymer has a molecular weight of less than 10000 g/mol.

5. Chewing gum according to any of claims 1-4,
wherein said at least one biodegradable polyester copolymer has a molecular weight
25 of less than 6000 g/mol Mn.

6. Chewing gum according to any of claims 1- 5, wherein said chewing gum comprises at least two different biodegradable polyester copolymers.

30 7. Chewing gum according to any of claims 1- 6, wherein said chewing gum ingredients comprise flavoring agents.

8. Chewing gum according to any of claims 1-7, wherein
said flavoring agents comprise natural and synthetic flavorings in the form of natural
vegetable components, essential oils, essences, extracts, powders, including acids
and other substances capable of affecting the taste profile
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9. Chewing gum according to any of claims 1-8, wherein
said chewing gum comprises flavor in the amount of 0.01 to about 30 wt %, said
percentage being based on the total weight of the chewing gum
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10. Chewing gum according to any of claims 1-9, wherein
said chewing gum comprises flavor in an amount of 0.2 to about 4 wt %, said
percentage being based on the total weight of the chewing gum
11. Chewing gum according to any of claims 1- 10, wherein
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- said flavor comprises water soluble ingredients.
12. Chewing gum according to any of claims 1-11, wherein
said water soluble flavor comprise acids.
13. Chewing gum according to any of claims 1-12, wherein
said flavor comprises water insoluble ingredients.
14. Chewing gum according to any of claims 1- 13, wherein
said chewing gum ingredients comprise sweeteners.
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15. Chewing gum according to any of claims 1-14,
wherein said sweetener comprises bulk sweeteners
16. Chewing gum according to any of claims 1-15,
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- wherein the chewing gum comprises bulk sweeteners in an amount of about 5 to
about 95% by weight of the chewing gum, more typically about 20 to about 80% by
weight of the chewing gum.

17. Chewing gum according to any of claims 1-16, wherein said sweetener comprises high intensity sweeteners
- 5 18. Chewing gum according to any of claims 1-17, wherein the high intensity sweeteners comprise sucralose, aspartame, salts of acesulfame, alitame, saccharin and its salts, cyclamic acid and its salts, glycyrrhizin, dihydrochalcones, thaumatin, monellin, sterioside, alone or in combination
- 10 19. Chewing gum according to any of claims 1-18, wherein the chewing gum comprises high intensity sweeteners in an amount of about 0 to about 1% by weight of the chewing gum, more typically about 0.05 to about 0.5 % by weight of the chewing gum.
- 15 20. Chewing gum according to any of claims 1- 19, wherein the chewing gum comprises at least one softener.
21. Chewing gum according to any of claims 1-20, wherein the at least one softener comprises tallow, hydrogenated tallow,
- 20 hydrogenated and partially hydrogenated vegetable oils, cocoa butter, glycerol monostearate, glycerol triacetate, lecithin, mono-, di- and triglycerides, acetylated monoglycerides, fatty acids - such as stearic, palmitic, oleic and linoleic acids mixtures thereof.
- 25 21. Chewing gum according to any of claims 1- 20, wherein the chewing gum comprises softeners in an amount of about 0 to about 18% by weight of the chewing gum, more typically about 0 to about 12 % by weight of the chewing gum.
- 30 22. Chewing gum according to any of claims 1- 21, wherein said chewing gum ingredients comprise active ingredients.

23. Chewing gum according to any of claims 1- 22, wherein
said active ingredients are selected from the group of: Acetaminophen,
Acetylsalicylsyre Buprenorphine Bromhexin Celcoxib Codeine, Diphenhydramin,
Diclofenac, Etoricoxib, Ibuprofen, Indometacin, Ketoprofen, Lumiracoxib,
5 Morphine, Naproxen, Oxycodon, Parecoxib, Piroxicam, Pseudoefedrin, Rofecoxib,
Tenoxicam, Tramadol, Valdecocib, Calciumcarbonat, Magaldrate, Disulfiram,
Bupropion, Nicotine, Azithromycin, Clarithromycin, Clotrimazole, Erythromycin,
Tetracycline, Granisetron, Ondansetron, Prometazin, Tropisetron, Brompheniramine,
Ceterizin, Ieco-Ceterizin, Chlorcyclizine, Chlorpheniramin, Chlorpheniramin,
10 Difenhydramine, Doxylamine, Fenofenadin, Guaifenesin, Loratidin, des-Loratidin,
Phenyltoloxamine, Promethazin, Pyridamine, Terfenadin, Troxerutin, Methyldopa,
Methylphenidate, Benzalcon. Chloride, Benzeth. Chloride, Cetylpyrid. Chloride,
Chlorhexidine, Ecabet-sodium, Haloperidol, Allopurinol, Colchicine, Theophylline,
Propanolol, Prednisolone, Prednisone, Fluoride, Urea, Miconazole, Actot,
15 Glibenclamide, Glipizide, Metformin, Miglitol, Repaglinide, Rosiglitazone,
Apomorphin, Cialis, Sildenafil, Vardenafil, Diphenoxylate, Simethicone, Cimetidine,
Famotidine, Ranitidine, Ratinidine, cetirizin, Loratadine, Aspirin, Benzocaine,
Dextrometorphan, Ephedrine, Phenylpropanolamine, Pseudoephedrine, Cisapride,
Domperidone, Metoclopramide, Acyclovir, Dioctylsulfosucc., Phenolphthalein,
20 Almotriptan, Eletriptan, Ergotamine, Migea, Naratriptan, Rizatriptan, Sumatriptan,
Zolmitriptan, Aluminium salts, Calcium salts, Ferro salts, Silver salts, Zinc-salte,
Amphotericin B, Chlorhexidine, Miconazole, Triamcinolonacetone, Melatonin,
Phenobarbitol, Caffeine, Benzodiazepiner, Hydroxyzine, Meprobamate,
Phenothiazine, Buclizine, Brometazine, Cinnarizine, Cyclizine, Difenhydramine,
25 Dimenhydrinate, Buflomedil, Amphetamine, Caffeine, Ephedrine, Orlistat,
Phenylephedrine, Phenylpropanolamin, Pseudoephedrine, Sibutramin, Ketoconazole,
Nitroglycerin, Nystatin, Progesterone, Testosterone, Vitamin B12, Vitamin C,
Vitamin A, Vitamin D, Vitamin E, Pilocarpin, Aluminiumaminoacetat, Cimetidine,
Esomeprazole, Famotidine, Lansoprazole, Magnesiumoxide, Nizatide and or
30 Ratinidine or derivatives and mixtures thereof.

24. Chewing gum according to any of claims 1-23, wherein the chewing gum is substantially free of non-biodegradable polymers
25. Chewing gum according to any of claims 1-24, wherein the at least two ore more
 5 cyclic esters are selected from the groups of glycolides, lactides, lactones, cyclic carbonates or mixtures thereof.
26. Chewing gum according to any of claims 1-25, wherein lactone monomers are chosen from the group of ϵ -caprolactone, δ -valerolactone, γ -butyrolactone, and β -
 10 propiolactone. It also includes ϵ -caprolactones, δ -valerolactones, γ -butyrolactones, or β -propiolactones that have been substituted with one or more alkyl or aryl substituents at any non-carbonyl carbon atoms along the ring, including compounds in which two substituents are contained on the same carbon atom.
- 15 27. Chewing gum according to any of claims 1-26, wherein the carbonate monomer is selected from the group of trimethylene carbonate, 5-alkyl-1,3-dioxan-2-one, 5,5-dialkyl-1,3-dioxan-2-one, or 5-alkyl-5-alkyloxycarbonyl-1,3-dioxan-2-one, ethylene carbonate, 3-ethyl-3-hydroxymethyl, propylene carbonate, trimethylolpropane monocarbonate, 4, 6dimethyl-1, 3-
 20 propylene carbonate, 2, 2-dimethyl trimethylene carbonate, and 1, 3-dioxepan-2-one and mixtures thereof.
27. Chewing gum according to any of claims 1- 26, wherein cyclic ester polymers and their copolymers resulting from the
 25 polymerization of cyclic ester monomers include, but are not limited to : poly (L-lactide) ; poly (D-lactide) ; poly (D, L-lactide) ; poly (mesolactide) ; poly (glycolide) ; poly (trimethylenecarbonate) ; poly (epsilon-caprolactone) ; poly (L-lactide-co-D, L-lactide) ; poly (L-lactide-co-meso-lactide) ; poly (L-lactide co-glycolide) ; poly (L-lactide-co-trimethylenecarbonate) ; poly (L-lactide
 30 co-epsilon-caprolactone) ; poly (D, L-lactide-co-meso-lactide) ; poly (D, L-lactide-co-glycolide) ; poly (D, L-lactide-co-trimethylenecarbonate) ; poly (D, L-lactide-co-epsilon-caprolactone) ; poly (meso-lactide-co

glycolide) ; poly (meso-lactide-co-trimethylenecarbonate) ; poly (meso lactide-co-epsilon-caprolactone) ; poly (glycolide-cotrimethylenecarbonate) ; poly (glycolide-co-epsilon-caprolactone).

5 28. Chewing gum according to any of claims 1-27,
wherein the chewing gum comprises filler.

29. Chewing gum according to any of claims 1- 30,
wherein the chewing gum comprises filler in an amount of about 0 to about 50% by
10 weight of the chewing gum, more typically about 10 to about 40 % by weight of the
chewing gum.

30. Chewing gum according to any of claims 1-29,
wherein the chewing gum comprises at least one coloring agent..

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31. Chewing gum according to any of claims 1-30,
wherein said chewing gum comprises conventional chewing gum polymers or resins.

32. Chewing gum according to any of claims 1-31,
20 wherein the at least one biodegradable polymer comprises at least 5% of the chewing
gum polymers.

33. Chewing gum according to any of claims 1-32,
wherein all the biodegradable polymers comprised in the chewing gum comprise at
25 least 25%, preferably at least 50% of the chewing gum polymers.

34. Chewing gum according to any of claims 1-33,
wherein all the biodegradable polymers comprised in the chewing gum comprise at
least 80%, preferably at least 90% of the chewing gum polymers.

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35. Chewing gum according to any of claims 1-34,
wherein said chewing gum comprises

- said at least one biodegradable polyester copolymer forming a plasticizer of the chewing gum and
- at least one non-biodegradable conventional elastomer.

5 36. Chewing gum according to any of claims 1-35,
wherein said chewing gum comprises

- said at least one biodegradable polyester copolymer forming an elastomer of the chewing gum and
- at least one non-biodegradable conventional natural or synthetic resin.

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37. Chewing gum according to any of the claims 1-36, wherein said chewing gum comprises

15 at least one biodegradable elastomer in the amount of about 0.5 to about 70% wt of
the chewing gum,

at least one biodegradable plasticizer in the amount of about 0.5 to about 70% wt of
the chewing gum and

20 at least one chewing gum ingredient chosen from the groups of softeners, sweeteners,
flavoring agents, active ingredients and fillers in the amount of about 2 to about 80%
wt of the chewing gum.

38. Gum base according to any of claims 1-37.